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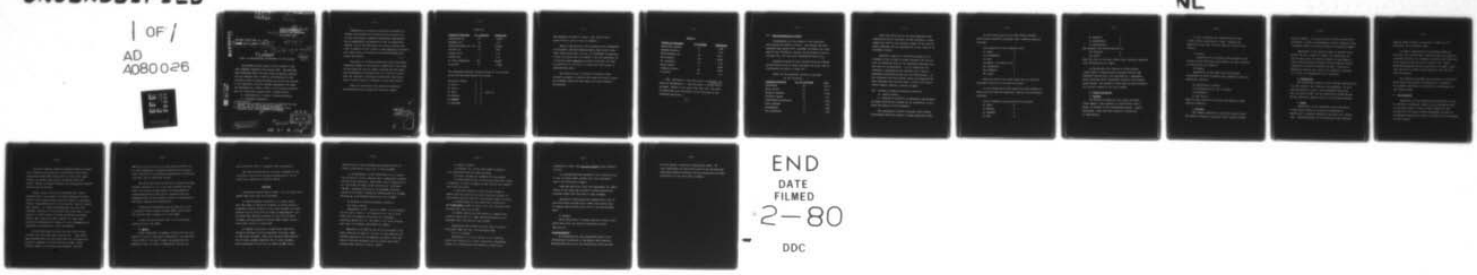

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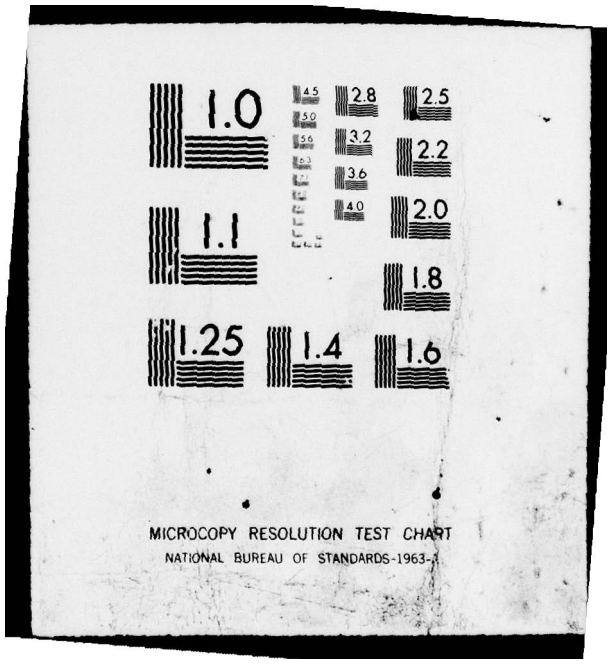
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Tanta Univ~~ersity~~ New (Egypt)
~~Faculty of Medicine~~
Dept of Bacteriology ~~Department~~
1st August 1979
Dept of Medical Micro

PROJECT N00014-75-C-1002

~~[illegible]~~ ANNUAL REPORT 1,2 (4th).

1 Aug 79

Rept. for Aug 78 - Aug 79

By

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Prof. of Bacteriology and Director of the Project

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The present annual report is the outcome of one year research beginning from August 1978. The work has been conducted within the same frame originally planned for the research and covered an investigation of the available cases of gastroenteritis as well as the sources of the important infective agents responsible for them. The following is a brief outline of the points covered in the one year period (August 1978 - August 1979):-

A - Investigation of cases of Gastroenteritis.

1 - Infantile Diarrhoea.

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Examination of suspected infective enteritis in infants and children was carried out in 2 places, one in Tanta university hospitals (Pediartiric Department) and is practically an extention of the investigations carried out on the same group in earlier reports, the other in Assiut in the depth of upper Egypt, in collaboration with a group of workers in the Microbiology Dept. Assiut University.

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The group of children picked from Tanta University Hospitals (middle of the Delta), ranged from 1 one month to six years old and the number examined was 400 cases. The investigation continued from 1.8. 1978 to 1.8.1979 with the exception of January and February when cases were so scarce that we preferred to drop this period.

Table (1) summarises the suspected intestinal pathogens from the examined 400 diarrheal cases.

Table (1)

Nature of organism	No. isolated	Percentage
Salmonella sp.	17	4.25%
Shigella sp.	12	3 %
Enteropathogenic E. coli	65	16.25%
Proteus sp.	72	18%
Staph aureus	4	1 %
Candida sp	4	1 %
E. coli (untypable)	197	49,25%
No growth	25	6.25%

The salmonella members belonged mainly to the enterica group and were distributed as follows:

Salmonella typhi	6	
S. para A	3	
S. para B	2	
S. Wein	2	total 17
S. Kottbus	2	
S. neopart	1	
S. thompson	1	

The shigella belonged to group A (2), Group B (8), group D (2) No group C was encountered.

Most of the known E. coli serotypes were represented and included 055,0111,086,0124,0114, 0125, 0127, 0126, 0128, 0142, 0112, 026, and 044 , in different frequencies. It may be noticed that the number of E. coli serolypes is relatively higher than in the previous reports, and this is attributed to the use of a newer and wider range of agglutinating sera.

The second group of infantile diarrheal cases examined in Assiut comprised 243 cases and table 2 shows the possible pathogens responsible and their relative frequencies.

Table 2

Nature of organisms	No isolated	Percentage
Salmonella species	8	3.29
Shigella species	4	1.64
Enteropath.E.coli	36	14.8
Prot morgani	58	23.86
Ps aerugenosa	15	6.17
Staph aureus	7	2.88
Untypable E.coli	97	39.9
No growth	18	7.4

The serotypes of the salmonella and shigella are still in investigation. The serotypes of the ESCHERICHIA E. coli belonged nearly to the same range like that met with in Tanta with some difference in the frequency of the different serotypes.

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II- Gastro-enteritis in adults

Investigation of out-breaks of food poisoning was carried out mainly in Tanta, and through the year starting from August 1978, reported out-breaks that were sent to the University hospital and El Minshawi hospital numbered 101, and the cases investigated were 645.

Suspected organisms were isolated from the vomitus or/and stools in 99 of these outbreaks and their rate of distribution is shown in table (3).

Table (3) the suspected causative organisms in 101 outbreaks.

Organism isolation	No. of outbreaks	%
Salmonella	25	24.75
Staph aureus	40	39.6
Shigella flexneri	12	11.88
Bacillus cereus	10	9.9
Clostridium perfringeus	8	7.92
Prot. species	3	2.97
Pseudomonas	1	0.99
Non identified	2	1.95

From this table we can see that salmonella was responsible for 25 outbreaks (24.7%) and Staph. aureus ranked the first as the causative agent in the investigated outbreaks and was suspected to be the cause of 40 outbreaks (39.6%).

Different articles of food were reported to be consumed by the victims in these outbreaks but only in very few instances some of the remaining suspected food was sent for investigation. In one relatively big outbreak S. typhimurium was isolated from a kind of sandwitch containing mineed meat and fried unions. In few outbreaks from which Staph. aureus was suspected the same organisms was isolated from a kind of soft cheese (white cheese) commonly consumed in Egypt.

III- Sources of gastro-intestinal infection.

A- Human sources.

1- Sources of infection by Salmonella and Shigella in human carriers were saught for by examination of the urine and stools of food handlers.

The examination covered 2 periods: three months January-Mars 1979 and another 3 months April-June 1979.

In the first period out of 5093 stools examined there were 10 positive salmonella and 7 positive Shigella isolates.

The serotypes of the salmonella were

S. typhi	6
S. typhimurium	2
S. Wein	2

The group of shigella were

Sh. dysenteria	1
Sh. Flexneri	5
Sh. Boydi	1

From the urine of the same cases only one positive salmonella isolate was obtained (S. typhi).

In the second period from April-June 6088 samples of stools gave 24 positive salmonella isolates and 12 shigella isolates.

The 24 salmonella were identified as follows

S. typhi	9
S. Korthus	3
S. infantis	1
S. ohio	3

S. muenster	2
S. typhimurium	5
S. melleagridis	1

The shigella were sero-classified as

Sh. Flexneri	9
Sh. Boydi	3

From the urine of the same number only 2 positive isolated were obtained, both S. typhi.

2- Examination for carriage of staph-aureus:
A good number of Staph.aureus collected earlier from different sources have been subjected to a systematic study including their enterotixic activity and bacteriophage typing. The results of this work is under publication and will appear in the final report.

B- Animal reservoirs

1- Rodents

An additional number of rats caught in Assiut (Upper Egypt), were examined in collaboration with a group of workers in the Bacteriology Depart. Assiut University. From 103 rats examined 4 (3.8%) gave S. typhimurium.

E. coli serotypes were isolated from 9 rats (8.7%), Staph aureus from 8 (7.8%). Proteus and untypable E coli were isolated from the rest of these rodents.

2- Cattle;

Examination of the lymph nodes obtained in the slaughter house from 200 young calves, all were negative for salmonella and shigella.

3- Camels.

Examination of 224 lymph nodes from Camels slaughtered at Cairo slaughter house yielded 12 positive Salmonella isolates.

S. Branderberg 4 strains

S. Meuenchen (6,8,d, 12) 4 strains

S. Muenster 2 .

S. St. Paul 2.

Most of these camels are imported from Sudan or other African countries.

4- Lizards

The results obtained in a previous report (about 5% positive salmonella isolates) from lizards obtained

from Abu Rawash, a village about 10 kilometers from Cairo stimulated a further investigation of these reptiles being a possible source of gastro-intestinal infection in Egypt.

Examination of 50 lizards caught in Gharbia Governorate all gave a negative result, but examination of 155 lizards caught in Assiut governorate (upper Egypt), with relatively hotter climate, 24 were found to harbour salmonellae in their intestines (15.4%). Fourteen of Salmonella strains were typed as S. wanagata, 6 strains as S. Ohio 1 S. typhimurium and 3 untypable.

5- Cochroaches

200 cockroaches caught at Tanta (Gharbia governorate), all were negative for salmonella and shigella. 67 gave proteus species, 5 gave E. coli Serotypes (3 strains 055, one strain 0128, and one strain 0111 and 50 strains E coli untypable, Bigger numbers are now being examined.

6- Birds

Examination of the intestine, liver and spleen of 200 fowls healthy or emergency slaughtered at Assiut gave a positive salmonella isolation in 6 chicken (3%). Enteropathogenic E. coli serotypes were isolated

from 23 birds (11.5%), proteus sps. 16 (8%) and non-typable E. coli 46 strain (23%).

In Tanta, examination of 100 chickens dying of diarrhaea and obtained from breeding farms gave positive samonella isolates in 5 chickens 4 strains were identified as S. pallarum. galinarum and 1 strain as S. agona. Enteropathogenic E.coli were isolated in 2 cases (1 sero-type 0124 and one 0111) E coli untypable were isolated from 10 chickens.

100 intestine specimens were obtained at random from Tanta sport club kitchen and examined for salmonella. Two positive isolates were obtained one S. Fallorum and 1,S. typhi murium.

C- Food articles

Examination of food articles was extented to cover, in addition to different kinds of food retailed for sale in the local market at Tanta, other articles of food collected by the public health authorities and sent to the Publich Helath-laboratories according to the programmes of food control.

The food articles included fifferent kinds of cheese, meat (particularly mined meat called Kofta), milk fresh and powdered milk with cereals used as baby food, eggs ; chicken and duck's eggs, fresh vegetables eaten raw, public dishes as "bilila" kosheri and koskosi,some imported frozen meat and chicken.

Staph. aureus and E. coli serotypes were common isolates from a good number of cheese specimens examined either natural white cheese (Damietta cheese) or processed cheese. Cl,perfringens was common isolate from the minced meat (Kofta). B. cereus was frequently isolated from different articles of food particularly fresh milk. A good number of a wide variety of fresh vegetables as radish, letuce, etc. (more than 1000 samples) all were found negative for samonella and shigella, only coliform bacilli untypable and proteus sp . were encountered.

Of 500 hen's egg collected from the local market at Tanta , no salmonella were isolated but . 500 duck's egg collected from the live stock from the villages near by gave 7 positive samonella isolates (1.4%), either from the shell or the beaten egg contents. The two

strains isolated from the contents were identified as S. typhi murmum, the 5 strains isolated from the shell were identified as 2 strains S. typhimurium, 2 strain S. pollarum, and one strain S. labadi.

The dried milk used as baby food (cereals and milk protein) produced by one of the big factories was put under our control and throughout one years study S. senfetenberg was isolated on two occasions from two different lots and the possible source of contamination with this organism was investigated.

Salmonella senfetenberg was isolated from a lot of imported frozen chicken in Mars 1979, and S. Cerro was isolated from another lot in July 1979.

S. Neoport was isolated from a lot of imported caltles meat in July 1979.

D- Sewage

Daily examination of sewage obtained from the main sewers in Tanta in the period extending to 6 months from January 1979 to the end of June, for salmonella and Shigella; only one strain of Salmonella (S. para B)

was isolated in June. No shigella were encountered.

The work is still going on in the different fields of study to add more to the previouslymentioned and to tackle some aspects not included before.

Abstract

The present report which covers a one year study from August 1978 dealt with the following:

1- Bacteriological examination of rectal swabs from 400 cases of infantile diarrheae in Tanta yielded a suspected positive isolate in 174 cases (43.5%). Samonella species were isolated from 17 cases (4.25%), Shigella from 12 cases (3%), Enteropathogenic E. coli from 65 cases (16.25%), Proteus species 72 cases (18%), Staph aureus 4 cases (1%), candida 4 cases (1%).

In Assiut, examination of 243 rectal swab from diarrheal children revealed suspected etiologic agest in 128 cases (52.64%). Salmonella species were isolated from 8 cases (3.29%), Shigella from 4 cases (1.64%). Enteropathogenic E coli from 36 cases (14.8%), Prot.

margani from 58 cases (23.86%)., Ps aeruginosa from 15 cases (6.17%) staph aureus from 7 cases (2.88%).

2- Investigation of 101 out-breaks of food poisoning reported to Tanta hospitals gave a suspected causative isolate in 99 outbreaks. Salmonella were identified from 25 out-breaks (24.75%), staph aureus in 40 out-breaks (39.6%) - Shigella flexneri in 12 (11.88%), Bacillus cereus in 10 (9.9%), Clostridium perfringens in 8 (7.92%) Proteus sp. in 3 (2.97%) Pseudomonas in 1 (0.99%).

3- Sources of gastro-intestinal infection

(a) Human sources

Examination of the stools of 5093 of food handlers in the period from 1st of January to the end of Mars 1979, gave 10 positive salmonella and 7 shigella isolates, Examination of the urine of the same subjects gave only one positive salmonella (S. typhi).

Examination of 6088 stools of food handlers in the period from 1st of April to the end of June 1979 gave 24 positive salmonella and 12 shigella isolates. From the urine of the same subjects only 2 positive salmonella isolates were obtained (both S. typhi).

B- Animal sources

a- Rodents; out of 103 rats caught in Assiut, 4 S. typhimurium strains were isolated.

b- Young calves; all negative for salmonella.

c- Camel: Examination of 224 lymph nodes from camels slaughtered at Cairo slaughter house, yielded 12 positive salmonella isolates.

d- Lizards: examined of 155 lizards caught in Assiut gave 24 positive salmonella isolates (15.4%). No Salmonellae were isolated from 50 lizards caught at Tanta.

e- Cockroaches: No salmonella was isolated from 200 Cockroaches caught at tanta. 5 E. coli serotypes were isolated from the same number.

f- Birds: Examination 200 chicken in Assiut gave positive salmonella in 6 (3%). Enteropathogenic E coli serotypes were isolated from 23 (11.5%).

Examination 200 chicken in Tanta gave 6 positive salmonella (3%) and 2 E. coli serotypes (2%).

C- Food articles

Examination of a good variety of food articles showed that cheese is commonly contaminated with Staph aureus. Cl. perfringens occur widely in minced meat

prepared for Kofta, and Bacillus cereus occurs commonly in milk.

S. senfetenberg was isolated on two occasions from 2 lots of dried cereal protein baby milk produced by one of the factories in Egypt.

Hens egg were found free from Salmonella but examination of 500 ducks egg yielded 7 positive salmonella isolates either from the shell or egg contents.

Salmonella senflenberg was isolated from a lot of imported frozen chicken and S. Cerro from another lot. S. neoport was isolated from a lot of imported cattles meat.

D- Sewage:

Daily examination of sewage samples in Tanta over 6 months gave only one positive salmonella isolate (S. para B).

Acknowledgement:

We acknowledge Dr. M.S. Mohyel-Din Head of the Bacteriology Department in the Central Public Health Laboratories and one of the consultants of the project

for his sincere cooperation during this study. We also acknowledge Dr. Emad Nafie head of the Bacteriology Department Assiut University and his colleagues for their cooperation in the work done in Assiut.